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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,324

02/16/2007

Heinrich Friederich

3643-0114PUS1

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7590

09/17/2009

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EXAMINER

YEE, DEBORAH

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

09/17/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/583,324	FRIEDERICH ET AL.	
	Examiner	Art Unit	
	Deborah Yee	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/06/06;06/16/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claim 11, the phrase "in particular" and "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

4. Also there is no antecedent basis for "said mixed structure".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11 to 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3,892,602 (hereafter "Kranenberg") in view of German patent 2754870 (hereafter "German-870") or European patent specification 948719 (hereafter "EP-719"), and US Patent 6,488,787 (hereafter "Ochi-787").

7. Similar to present invention, Kranenberg on lines 5 to 26 of column 1, lines 30 to 44 of column 3 and lines 7 to 28 in column 6 discloses cold rolled steel screw having a

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fine-grain ferrite microstructure dispersed with fine-grain spheroidal carbide. The prior art spheroidal carbide would be equivalent to spherically formed cementite recited in claim 1 since cementite is a carbide (Fe_3C). In addition, specific steel example on lines 6 to 25 of column 6 of Kranenberg discloses a composition containing 0.39% C, 0.75% Mn and 0.81% Si which are within the claimed alloy ranges recited by one or more of the claims. Although the additional elements Cr, Mo, V, B, Nb, and/or Ti are not contained, such elements would be obvious to incorporate since they are common steel additives to enhance mechanical properties for low-alloy threaded components as evident by Ochi-787 in columns 5-7.

8. Kranenberg does not teach a maximum grain size that results in at least 2000 grains/ mm^2 and preferably at least 3000 grains/ mm^2 as recited by claim 11 but such property would be expected since composition and process of making screw by cold working (cold heading) without subsequent heat treatment is taught and in absence of evidence to the contrary.

9. Kranenberg does not teach screw whereby the ratio of external diameter to core diameter of >1.2 and pitch to external diameter of >0.23 as recited by claim 11 but such structural screw limitations are standard in the metallurgical art as evident by German-870 and EP-719 and therefore would be obvious and a matter of choice well within the skill of the artisan to incorporate.

10. Claims 11 to 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,488,787 (hereafter "Ochi-787") in view of German patent 2754870 (hereafter "German-870") or European patent specification 948719 (hereafter "EP-719").

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11. Ochi-787 lines 30 to 40 in column 1 and claims 1 to 12 of columns 16-18

discloses steel bar or wire subjected to cold forging to form machine parts such as a bolt and would also include a screw since it is also threaded component. In addition, steel meets the claimed composition and exhibits a fine-grain ferrite microstructure dispersed with fine-grain spheroidal carbide. The prior art spheroidal carbide would be equivalent to spherically formed cementite recited in claim 1 since cementite is a carbide (Fe_3C).

12. In addition, specific steel examples in tables 1 and 5 meet the claimed composition and exhibit fine ferrite grain with a ferritic grain size number according to JIS G0552 of the ferrite being at least No. 9 and spheroidize carbides are present at $1.5 \times 10^6 \times \text{C}$ which would closely meet a maximum grain size that results in at least 2000 grains/ mm^2 and preferably at least 3000 grains/ mm^2 as recited by claim 11. Also grain size property would be expected since composition and process of making threaded component by cold working without subsequent heat treatment is taught and in absence of evidence to the contrary.

13. Ochi-787 does not teach screw whereby the ratio of external diameter to core diameter of >1.2 and pitch to external diameter of >0.23 as recited by claim 11 but such structural screw limitations are standard in the metallurgical art as evident by German-870 and EP-719 and therefore would be obvious and a matter of choice well within the skill of the artisan to incorporate.

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14. Claims 11 to 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,866,724 (hereafter "Ochi-724") in view of German patent 2754870 (hereafter "German-870") or European patent specification 948719 (hereafter "EP-719").

15. Ochi-724 on lines 16-40 in column 1 and claims 1 to 8 of columns 17-20 discloses steel bar or wire rod subjected to cold forging to form machine parts in general such as a bolt and would include a screw since it is also threaded component. In addition, steel meets the claimed composition and exhibits a fine-grain ferrite and martensite microstructure.

16. More specifically, steel examples in tables 1 and 5 meet the claimed composition and exhibit fine ferrite grain with a ferritic grain size number according to JIS G0552 of the ferrite being at least No. 9 and martensite.

17. Ochi-724 does not teach a maximum grain size that results in at least 2000 grains/ mm² and preferably at least 3000 grains/ mm² as recited by claim 11 but such grain size property would be expected since composition, microstructure, and process of making threaded component by cold working without subsequent heat treatment is taught and in absence of evidence to the contrary.

18. Ochi-724 does not teach screw whereby the ratio of external diameter to core diameter of >1.2 and pitch to external diameter of >0.23 as recited by claim 11 but such structural screw limitations are standard in the metallurgical art as evident by German-870 and EP-719 and therefore would be obvious and a matter of choice well within the skill of the artisan to incorporate.

19. For the foregoing reasons, claims would not patentably distinguish over prior art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/
Primary Examiner
Art Unit 1793

/DY/